solution from the extraction portion **18**. If the shapes of the injection portion **17** and the extraction portion **18** are the same, the shapes of the caps **21** and **22** are the same as well. It is convenient to make the caps the same in shape because this eliminates the need to manage the caps according to injection and extraction.

[0073] In the following description, it shall be deemed that the shapes of the injection portion **17** and the extraction portion **18** are the same and the shapes of the caps **21** and **22** are the same, and only the shapes of the injection portion **17** and the cap **21** shall be described.

[0074] FIG. **6** is a perspective view of the shape of the cap **21** that covers the injection portion **17**. The cap **21** is formed of a resin, such as polytetrafluoroethylene, etc., and is arranged from a knob portion **21***a* for holding with a hand, a side surface portion **21***b* contacting the inner side surface **17***a* of the cylindrical tube of the injection portion **17** or the inner side surface **18***a* of the cylindrical tube of the extraction portion **18**, and a bottom surface portion **21***c*. A hypothetical cross section of the side surface portion **21***b* resulting from sectioning perpendicularly along a centerline of the cap **21** is indicated by "S." The cap **21** is formed so that the area of the cross section S decreases gradually along a direction of insertion from the knob portion **21***a* to the bottom surface portion **21***c*. On the other hand, the inner side surface **17***a* of the injection portion **17** is formed so as to increase in cross-sectional area with distance from the injection port **15**.

[0075] Specifically, the side surface portion **21***b* of the cap **21** is tapered in a sectional side view. An angle of inclination formed by the side surface **21***b* and the centerline is represented by "θ." The inner side surface **17***a* of the injection portion **17** is also inclined at a fixed inclination angle with respect to the centerline in a sectional side view. This "fixed inclination angle" is also equal to the angle θ of the side surface portion **21***b* of the cap **21**.

[0076] A method of using the sample cell container C shall now be described using FIG. **7**. In a state where the caps **21** and **22** are removed, a predetermined amount of the sample solution is injected from the injection portion **17** using a micropipette **23**. The predetermined amount is marked on the micropipette **23** and by injecting the predetermined amount, a state is reached where the internal space **11** is filled with the sample solution and portions of the interiors of the cylindrical tubes of the injection portion **17** and the extraction portion **18** are also filled with the sample solution.

[0077] When a large amount of the sample solution that exceeds the predetermined amount is placed in the micropipette **23**, the sample solution overflows from the injection portion **17** or the extraction portion **18** or a state close thereto is reached and the sample solution is wastefully lost when the caps **21** and **22** are mounted. Therefore by adhering to the predetermined amount of the micropipette **23**, sample injection of a fixed amount is made possible and wasting of the injected sample amount can be eliminated.

[0078] As the caps **21** and **22** are pushed in, excess solution overflows from the injection portion **17** and the extraction portion **18** because the side surface portion **21***b* of the cap **21** is tapered at the angle equal to the inclination angle of the inner side surface **17***a* of the cylindrical tube of the injection portion **17** and the side surface portion **22***b* of the cap **22** is tapered at the angle equal to the inclination angle of the inner side surface **18***a* of the cylindrical tube of the extraction portion **18**.

[0079] If the side surface portion **21***b* of the cap **21** is not tapered, that is, if the cap **21** is formed so that the area of the cross section S of the side surface portion **21***b* of the cap **21** is uniform from the knob portion **21***a* toward the bottom surface portion **21***c* and the inner side surface **17***a* of the cylindrical tube of the injection portion **17** is also formed to be uniform in cross-sectional area, air becomes retained between the bottom surface portion **21***c* of the cap **21** and the water surface of the sample solution as the cap **21** is pushed into the injection portion **17**. The same applies when the cap **22** is pushed into the injection portion **18**. The retained air is entrained in the sample solution as the pressure of the sample solution in the internal space **11** increases and bubbles are thereby formed readily. Once bubbles form, the bubbles become attached to the inner wall surfaces of the internal space **11** and become difficult to remove.

[0080] With the preferred embodiment of the present invention, by making the side surface portion **21***b* of the cap **21** and the inner side surface **17***a* of the cylindrical tube of the injection portion **17** be inclined at equal angles, the retention of air between the bottom surface portion **21***c* and the water surface of the sample solution during the mounting of the cap **21** can be prevented. Similarly, the retention of air between the bottom surface portion **22***c* and the water surface of the sample solution during the mounting of the cap **22** can be prevented. Bubbles are thus prevented from becoming mixed in the sample solution and forming of bubbles during sample injection can be suppressed.

[0081] An embodiment is also possible where the cap **21** is arranged to be used exclusively for the injection port, the cap **22** is arranged to be used exclusively for the extraction port, the side surface portion of one of the caps is tapered, the side surface portion of the injection port or the extraction port on which that cap is mounted is also taped, the side surface portion of the other cap is not tapered, and the side surface portion of the injection port or the extraction port on which that cap is mounted is also not taped. With this arrangement, the forming of bubbles can be prevented completely at least at the cap that is tapered and the injection port or extraction port on which the tapered cap is mounted.

[0082] Also as shown in FIG. **8**, an embodiment is possible where a side surface portion **21'***b* or a side surface portion **22'***b* of a cap **21'** or **22'** is tapered and has a thread groove (male groove) formed thereon, an inclined thread groove (female thread) is formed on the inner side surface of the injection portion or the inner side surface of the extraction portion on which the cap is mounted, and the cap is pushed in while turning. In this case, excess solution overflows from the injection port **19** or the extraction port **20** as the cap **21'** or **22'** is screwed in. By using the threaded fitting, firm coupling of the cap **21'** or **22'** with the injection portion or the extraction portion can be realized.

[0083] Although preferred embodiments of the present invention have been described above, embodiments of the present invention are not restricted to those described above. For example, the shape of the embedded electrode **14** is not restricted to that of U-shaped cross section as shown in FIG. **5**B and any shape, such as an "S"-shaped cross section, an "I"-shaped cross section, etc., may be adopted. FIG. **9** shows the shape of an embedded electrode **14***a* arranged to have an "S"-shaped cross section by bending a metal plate twice. Besides the above, various modifications may be applied within the scope of the present invention.